

2404/303

MICROBIOLOGY, PARASITOLOGY  
AND IMMUNOLOGY

Oct/Nov. 2011

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN APPLIED BIOLOGY

MICROBIOLOGY, PARASITOLOGY AND IMMUNOLOGY

3 hours

*This paper consists of TWO sections: A and B.*

*Answer ALL questions in section A and any THREE questions from section B.*

*Each question in section A carries 4 marks while each question in section B carries 20 marks.*

*Maximum marks for each part of a question are indicated.*

**This paper consists of 3 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

## SECTION A: (40 marks)

Answer ALL the questions in this section.

1. Distinguish between:
  - (a) definitive host and intermediate host; (2 marks)
  - (b) filariform and rhabditiform larvae. (2 marks)
2. Illustrate, by use of a diagram, the results of formal ether sedimentation concentration of a faecal specimen after centrifugation. (4 marks)
3. Outline Xenodiagnosis of *Trypanosoma cruzi*. (4 marks)
4. A patient presented the following symptoms:  
 Redness and irritation of the eye.  
 Microfilariae in active movement in cornea.  
 Elephantiasis of leg and scrotum.  
 Hanging groin.  
 skin with dark spots (leopard skin).
  - (a) Identify the most probable cause of the above parasitological infection. (1 mark)
  - (b) Name the intermediate host of the above named parasite. (1 mark)
  - (c) Explain the pathological cause of the darkspots on the skin. (2 marks)
5. State the steps involved in the replication cycle of animal viruses. (4 marks)
6. Outline the procedure for determining Biological Oxygen Demand (BOD) in a laboratory. (4 marks)
- State: BOD
7.
  - (a) any two factors that determine the diameters of the zones of inhibition in Bauer-Kirby test; (2 marks)
  - (b) Two limitations of Bauer-Kirby test. (2 marks)
8.
  - (a) Differentiate between T- suppressor cells and T- helper cells. (2 marks)
  - (b) Name the end products of B-cells antigenic stimulation. (2 marks)
9. Explain the role of fever in body defence mechanism. (4 marks)
10. A boy is stung by a bee on the face. After 5 minutes, the boy's face swell considerably. Explain why this happens. (4 marks)

SECTION B: (60 marks)

Answer any THREE questions from this section.

11. Discuss *strongyloides stercoralis* with respect to:
- (a) transmission and life cycle; (8 marks)
  - (b) diagnosis; (2 marks)
  - (c) clinical features and pathogenicity; (8 marks)
  - (d) prevention and control. (2 marks)

known as *Strongyloidiasis*  
 - people who travel to endemic areas  
 - Disease symptoms is skin rashes, abdominal pain, anemia

12. Discuss the human, ectoparasite *Anoplura* (lice). (20 marks)

13. (a) Differentiate between batch and continuous bacterial growth culture. (6 marks)
- (b) Outline the viable count procedure. (8 marks)
- (c) Classify bacteria on the basis of oxygen requirements. (6 marks)

14. Discuss the application of temperature in sterilization. (20 marks)

15. (a) Explain the "Graves disease". (7 marks)
- (b) Describe the structure of the lymph node. (13 marks)

a disease of the thyroid gland where auto antibodies are produced against thyroid receptors, destroying them leading to a situation called goitre

Continuous bacterial growth.

H  
A  
S  
grow  
Mucosinase etc  
3